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Social innovation in services: technologically assisted new care models for people with dementia and their usability

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Abstract: The holy grail of service innovation is improved quality at a lower cost. West Lothian in Scotland has developed a new care model for people with dementia and the elderly based upon technologically supported independent living.

Referencing ten years of participant-observation in the integrated care processes creating this model, the author presents a case study of West Lothian smart housing from the viewpoint of social innovation. Six conceptual tools are introduced which are helpful in guiding and analysing local service social innovation. Mulgan's (2005) four characteristics of social innovation structure this analysis.

The paper argues that social innovation in local services is non-linear and open in character and successful where the psychic distance between service provider and users is low.

Keywords: social innovation; elderly; technological-assisted care.

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1 Introduction

Victor Hugo's observation that the misery of a child is interesting to a mother, the misery of a young man is interesting to a young woman, the misery of an old man is interesting to nobody, is interpreted by Thane (2005) to mean that increasingly, it is the young that define the elderly. Europeans now live 11 years longer than they did in 1900 thanks to welfare, health and housing progress (Minois, 1989). If Europe's age profile changes from one in six over 65 years of age in 2000, to one in four predicted by 2030, then

unless productivity increases, there are important consequences for the tax-take necessary to fund pension, healthcare and services for the elderly (CEC 2001). Galbraith (1992) refers to tax-ceilings, which challenges the future of the welfare state as a culture of contentment.

The holy grail of service innovation is improved quality at a lower cost. This is the story of technologically assisted care for people with dementia using mature technologies: alert, alarm and assistive devices and signalling. It is a story of social rather than technical innovation: a new way of thinking about care of the elderly based upon autonomy and independent living in locally shaped services.

It is often said that growing old is better than the alternative. Sadly, there may be little dignity for the one in five of us who, if we reach the age of 80, will be demented. Mainly found in older age groups, dementia is a generic bio psychosocial syndrome-disorder covering arteriosclerotic dementia, Huntington's chorea, Pick's disease and general paralysis of the insane. Alzheimer's disease, a degenerative condition, is the main cause of dementia. Dementia is an incurable reverse-ageing process that unravels cognitive functioning: the cerebral cortex ceases to function as a result of spherical plaques inhibiting synaptic processes and tangles choking neuron membranes (Whalley, 2001; Shenk, 2003). Some 4.5 million Europeans currently need care for dementia-related disorders. Trends towards an ageing population mean that by 2050, this figure is likely to have doubled (Ermisch, 1990). Aimless wandering and memory loss are important symptoms (Albert and Knoefel, 1994). Current care regimes may involve heavy sedation or permanently locking people in residential homes. In the earlier stages of the disorder (lasting on average 8.2 years until death) relatives – often women – sacrifice themselves and their careers in reverse-parenting roles, frequently becoming ill themselves. Dementia is a major and growing problem, with highly significant economic disbenefits giving rise to serious ethical issues, such as locking people up. In the early stage of dementia, informal carers often bear the cost of care. As impairment increases, formal carer support to both the informal carer and person with dementia is likely to increase, until a point where the informal carer ceases to cope and the sufferer is institutionalised. Numerous studies show the high costs of treating dementia (Jonsson et al., 1999; Hauber et al., 2000; Neumann et al., 2000; Getsios, 2001). Fillit and Hill (2002), using US figures for some 4,000 patients, argue that the total annual individual cost of vascular dementia treatment is some €31,177. Alloul et al. (1998) report US studies computing the cost of Alzheimer's care alone (1985 figures) as between €24 and €48 billion per annum. Carr et al. (1997) suggest an annual US cost of €70 billion for Alzheimer's disease, with a lifetime care cost per individual of €47,000. Eaker et al.'s (2002) study of 900 elderly people in Wisconsin shows those patients with dementia make 60% greater demands on healthcare services than control groups.

Social innovations are catalysed and diffused by organisations whose purpose is to meet social needs, often being initiated at a localised level, as distinct from for-profit innovations that fill a market gap (Mulgan, 2006a). Some social innovations involve agitation in movements around ideas – others are initiated as new products or services (Green, 2005). Whereas most industrial R&D is now institutionalised (Freeman, 1982) and reliant upon codifiable knowledge (Nonaka and Takeuchi, 1995), social innovations are often the pragmatic recombination of existing knowledge domains. Social innovations tend to be evolutionary in character; they may involve strict regulatory regimes (e.g. a duty-of-care), obfuscating relations between investors and those gaining a return on

investment. In short, social innovations can take longer to become accepted practice than commercial innovations. This may be especially so where joining-up public agencies is necessary for innovation; or where new ways of working need time to evolve. Characterised by their use-value, social innovations exhibit a close psychic distance between providers and users, a high levels of usability and a significant degree of interactivity or co-production. The social innovation that is the subject of this paper – technological-assisted independent living for people with dementia and the elderly in general – draws upon the experience of smart housing in West Lothian (WL), Scotland.

The author supports public policy changes seeking to de-institutionalise care, shifting resources to palliative care and independent living (Hunter, 1997). Many current themes in social innovation literature are referenced, especially the work of Geoff Mulgan, the author commented upon themes from social innovation literature including use, usability, usage and usefulness and their impact upon the demand for a new model of care. Open innovation often has to reconcile tight project management and accountability with openness to unforeseen social innovation opportunities: access to widely joined-up services and people in the early stages of dementia in particular. The author's conclusions challenge some of the limitations placed on social innovation processes by programmed techniques favoured by central government, which presume known network boundaries and causal relations at the onset of innovation processes. A central theme of this research is situated and localised learning and the ability of local agencies to co-produce new service models in conjunction with users, where providers operate with a close psychic distance to users, spending the time necessary for users and professionals to adapt to new ways of thinking about services.

Section 2 reviews literature relevant to this argument and Section 3 outlines the longitudinal research method used. Data from WL and other studies relevant to social innovation in dementia care is summarised in Section 4 and analysis in Section 5.

2 Conceptual tools

The purpose of this paper is to illustrate how social innovation in a complex service at local level can improve quality at a lower cost. This section presents six sets of conceptual instruments for later use in analysis, aiming to enrich understanding of social innovation in a localised setting. The usability quadrant, the idea of psychic distance and discussion of causality and boundaries help explain the learning and implementation processes of a situated and localised innovation. The author will argue later that smart housing is an open innovation and results in co-production of service: literature surrounding these concepts is discussed. Finally, the role and importance of connectors as leaders is considered.

Since von Hippel (1988), every technology student knows that the answer to the technology-push or demand-led debate is a (contextually-appropriate) reconciliation of the two. Yet, as Hassnert and Allwood (2002) found, 50% of software products are not tested on users. Contextualised and user-led usability is especially difficult where users have difficulty articulating preferences and is unlikely to be met by human-computer interface testing (Åborg et al., 2002), compliance with top-down standards such as ISO FDIS 13407 or descriptive frameworks such as the ASHoRED Copenhagen Model.

Contextual usability (see Kinder, 2000) is a tool compelling ever-deeper analysis into epistemological questions – why and how demand patterns change (Figure 1). For example, analysis of trial results is likely to reveal ways in which users demand (use) is unexpected or patterns of use (usage) is unintended. In addition, the grid calls attention to disjunctions between parts of the quadrant where (for example) a device has high usability but the service usefulness is low. This model was employed in the usability testing of smart housing and is ideally suited to social innovations that are characterised by unintended patterns of usage and perceptions of usefulness.

Figure 1 Dimensions of contextual usability

<p>USE</p> <p>Who uses what product/service, for what reason (<i>why</i>), where (in what social and economic space, and when (time and duration).</p>	<p>USABILITY</p> <p>The ease of use of the product/service from the user's perspective, to achieve the desired outcome.</p>
<p>USEFULNESS</p> <p>The perception of output stimulating the user to use the product/service, and the actual use to which the product/service is put over time. Usefulness is output achieved relative to alternatively available technology.</p>	<p>USAGE</p> <p>The patterning or crystallised habits of use over time, and in the particular circumstances facing the individual user.</p>

Source: Kinder (2000)

Mulgan (2005) argues cogently for devolution and diversity if local government is to embrace social innovation. The notion to psychic distance helps describe the close interaction between users and suppliers of local services. Originally used to mean barriers to trade (Beckerman, 1956); psychic distance here describes empathetic proximity between service providers and users within the non-market setting of local public services. Its use is preferred to accountability (e.g., in quality standards), which can suggest a one-way communications. Psychic distance involves trust, (openness to misunderstanding and vulnerability), in an innovative environment of managed (not avoided) risk – an openness to innovation.

Open innovation suggests that provider and user become sufficiently communicating and trustful to educate each other: synchronising information and values. Whereas Beck (1992) argues that risk takers often impose the risk consequences on others, the argument here is that risk management can be maturely understood and managed where local professionals and service users/carers have enjoy low psychic distance. Open innovation is characterised by unforeseen and therefore unanticipated causalities and consequences. As Chesbrough and Teece (2002) and Chesbrough (2003, 2004, 2006) argue, the wider the (inter-organisational) footprint of innovation, the more open to new ideas the innovation becomes. Closed innovations forestall the unforeseen using anticipatory actions, often using project management techniques or programmed change, by designating goals and KSFs, prescribing processes and critical path, and planning inputs to avoid scope-creep and maximise accountability for resources expended. Social, like

open innovation, is not constrained by time-to-market. Indeed, a danger for social innovators may be more from not building constituencies supporting change and adapting original plan to respond to opportunities and ideas from users. UK care services suffer from compartmentalisation between care and health. It is therefore especially important to demarcate the boundaries in which social innovation occurs to answer the question: who invests and who benefits from a return on investment.

Socially innovation networks are characterised by porous and changing boundaries with unclear causal relationships and (at times) contested purposiveness. The boundaries of social innovation networks alter as initiators or catalysing organisations building intra- and inter-organisational constituencies of support, such as urban regime coalitions (Lauria, 1997) or as the normative intentions become shared. Boundaries alter too as reflective practitioners enrol new supporters across organisational or governance divides. Predicting causality in networks can therefore be difficult. The wider the social innovation network, the more likely goals and outcomes are to conflict or be contested. Redrawing boundaries by co-location (Bardach, 1998; Haynes et al., 2006) and service integration (Leutz, 1999) offers opportunities to renegotiate identities, roles and meanings. The boundaries of social innovation networks are especially difficult to draw where (as in the smart housing case) one aspect of the new care model is increased co-production by some of the service users.

Co-production is the design and/or delivery of services by some combination of state and non-state agents (Rich, 1979; Parks, 1981; Cahn, 2000). From one perspective, co-production is the transfer of responsibility, cost and risk from the state to individuals – hollowing-out the local state (Jessop, 1994). Alternatively, co-production is active participation (Mulgan, 1991), characterised by communitarian social relations (Etzioni, 1995), using innovative forms of state support to deliver services (Cornwall and Gaventa, 2000). From this latter perspective, co-production empowers local spatial communities (Sundeen, 1985), raises social capital (Putnam, 2000) and strengthens local infrastructure (Kretzmann and McKnight, 1993). Marshalling people and resources around co-produced services requires purposive and clear-sighted leadership.

If the task of leaders is to create a vision, they communicate and help implement them. Learmonth (2005) is correct in arguing that in practice, leaders require a combination of administrative, management and leadership problem-solving abilities. Social innovators, Mulgan (2006a) argues, seem often driven by a metaphor, a story, or an experience of negativity. For social innovators, altruistic and ethically sound motivation appears critical (London, 1999), if, as Drummond (1993, p.75) argues the leader is to gain the ‘ability to induce or influence another actor to carry out his directive or any other norm she/he supports’. Power in social innovations cannot rest on command and control but rather the subtler and multi-dimensional forms described by Lukes (1974): moral authority, inducement, persuasion; in short, the power of ideas that are ineradicably value-dependent and rely upon social acceptance to create change. Building social acceptance for a new set of social relationships is evolutionary and takes time. This does not mean that the outcome may not be transformative, rather as the case in this paper illustrates, that actors arrive themselves at the transformation in the time it takes them to adopt new ways of relating and expressing the new service and semiotic order (Fairclough, 2003). Often, leaders in social innovations play the role of connectors: drawing governances, modes of expression and visions together (Mulgan, 2001).

3 Method

Using a short case study from a social innovation perspective on the integration of care services in WL, Scotland, the author's contribution is to highlight aspects of social innovation. These include the changing role of professionals, performance and localism, learning in local services and new modes of creating professional wisdom. Since the story presented covers an extended time-line, the paper is able to capture the state of the art before, during and after social innovation in care services.

The author was involved for ten years as a participant observer in shaping care services for the elderly in WL, as an elected local authority member and Secretary to the Administration group. Background data includes numerous WL council reports on services for the elderly, design briefs, budgets, plans and evaluations of smart housing and the integration and restructuring of care services (including social work, housing, primary healthcare). Innumerable informal discussions with key actors, professional staff and service users provide an interpretative framework. Background data provide an event oriented retrospective study, giving a large amount of detail (Blossfeld and Rohwer, 1995) and the discernment of patterns (Menard, 1991).

Supplementary and current material was gathered in semi-structured interviews with David Kelly, the Chief Executive of the WL CHCP, Graham Blair, the Director of Social Policy, Jane Kellock the Health Manager and Dr. James McCallum (WL General Practitioner (GP) Association). In late 2006, along with Susan Hunter of the University of Edinburgh, School of Social Work, the author interviewed sixteen front-line social workers and practice managers working in smart housing using the conventions of cognitive conversations (Geiselman et al., 1985).

Being aware of the twin dangers of subjectivity and over-familiarity, the author chose a proven framework for analysing social innovation (Kinder, 2002). The author used the four headings recommended by Mulgan (2006a and 2007, Ch. 13) to structure analysis. These are new combinations, crosscutting initiatives, compelling new social relationships and the roles and actions of connectors. Data analysis processes began with reflexivity by the author on social innovations covering a period of ten-years; secondly, triangulation with other recent research output and thirdly, using the analytical lens of social innovation to take a new look at data.

4 Social innovation in care for the elderly

This section begins by charting independent living for the elderly in WL, Scotland, showing why, how and with what results social innovation occurred and is occurring. It then details the development and piloting of an ambient care technology for the elderly, illustrating its social innovation potential.

4.1 Smart housing

When established in 1996, the unitary WLC faced a crisis in care for the elderly (Kinder, 2000). A rising demand for care (11% of its 160,000 over 65 years of age, 2,000 of whom with dementia or other debilitating mental or physical needs), coupled to a falling supply (the local NHS implementing care-in-the-community reducing the supply of institutional

places). Increasingly, elderly people occupying the council's social care facilities required medical attention beyond the competence of staff, whilst lack of appropriate facilities in the community blocked beds in hospitals and added costs. Carers' advocacy groups challenged the ethics of institutional care regimes with care staff increasingly frustrated at the quality of care they were able to offer.

By 2007, detailed planning, organisation and delivery of all care (non-acute) services to the elderly via a jointly funded and staffed Community Health and Care Partnership (CHCP) had eradicated bed-blocking in the local hospital; was busily creating joint-professional teams involving GPs, social workers, hospital doctors, police, education and housing; and was supporting technological-assisted independent living in the largest cluster of smart housing in Europe (6,500 homes). All citizens over 70 now enjoy independent living in their own homes or sheltered facilities supported by free smart technologies and an ever-more integrated set of ambient care and medical services. In summary, the service model caring for the elderly was transformed along with the attitudes of users to services and their providers and service providers to each other and users: a remarkable social innovation.

WL is a series of small townships, home to the national burns hospital and thus had a large proportion of hospital staff living in the area, and has a strong collectivist working class culture – all of which contributed to a high level of engagement in voluntary organisations. When the new council leadership initiated consultations on modernising services to the elderly, initially consulting on the replacement of three outdated residential homes by clusters of smart housing, people paid attention. Council staffs were aware of demonstration smart homes in the UK and Europe but unimpressed that nobody lived in them! Initially, the consultation was around new hub-and-spokes housing (care staff in the hub) featuring alert, alarm and assistive technologies configured to support the individual needs of ex-institutional residents removed to independent living. Debate around these changes was intense. Was this an exercise in saving money? Was twenty-four hour care guaranteed? When alarms were transmitted did formal or informal (family) carers respond? How would non-council care and medical support fit into the new arrangements? These debates were highly charged with care professionals articulating some of the greatest reservations and informal carers expressing some of the strongest emotions, with one family member asserting to the author “you are going to kill my mother”. The elderly themselves almost unanimously supported the change; one person simply stating she wanted her own home because ‘there’s no dignity in dying in a shared room’. The new facilities were occupied in 1999 and lessons were quickly learned.

Whilst alert, alarm and assistive technologies may constitute smart housing, the smartness of independent living was not in the technology but in the ambient care and service networks. Referencing the usability quadrant, it soon became clear that plans to rollout smart housing across the county (heritage plus additional purpose-built homes) challenged the fragmented care systems. Gradually, building from the bottom-up and driven by improved quality of care, the agencies and voluntary groups providing care for the elderly began joining-up services, between 1998 and 2004. The council and hospital pooled occupational therapy stores began coordinating care and intermediate care visits, partnering around hospital discharge management, sharing data (Kinder, 2002c). This process culminated in the co-location of 13 service providers at the Strathbrock Centre in

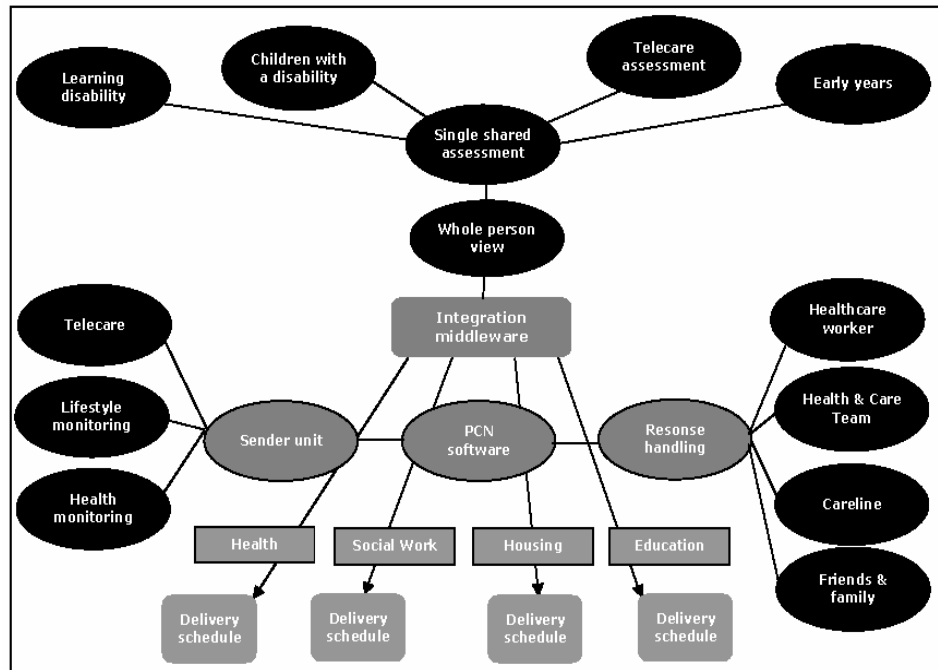
Broxburn and a comprehensive joint health improvement plan. In 2004, the NHS Reform (Scotland) Act obliged Scottish local councils and health boards to establish Community Health Partnerships (CHPs) to jointly plan health and social care, involving the third-sector. Uniquely, building upon service-level integration, WL opted for the closest integration possible the WL Community Health and Care Partnership (WL CHCP), which delivers social care and primary healthcare and has a devolved budget of £120 million (£55m from WLC and £66m from LHB). This hybrid structure came into being in April 2005 to 'increase the wellbeing for WL citizens and reduced inequalities across all communities in WL' (www.westlothianchcp.org.uk). Its Chief Executive, David Kelly, (Kinder, 2007) describes it as a 'virtual organisation' focused on care quality around client needs, which avoids concentrating effort on organisation building; its hybrid accountability to both council and NHS is a price worth paying. Already, the CHCP is integrating information systems, has instituted a shared assessment and established communities of practice of practice involving GPs, hospital doctors and social work staff aiming to further integrate services (Hunter and Kinder, 2008).

Amongst the social innovations affecting informal carers, is risk reduction and assurance: their elderly relatives enjoy twenty-four alerts of danger (unlocked doors, overheated baths or kitchens) and formal and/or informal carers alarms (falls, movement, wandering). An inter-agency SWIFT system records and shares information on visits by professionals and support staff and enables professional staff to dedicate their time to situations requiring professional judgement and participation in a wide array of integrated communities of practice intent on further service improvements. Staff participation in training and upskilling is high and high quality IT systems are now in general use. At a cost of £680/unit, the basic package includes a lifeline, radio trigger, food alerts, pendulum, and infrared movement detectors. Current capacity allows for the doubling the number of smart homes. At intermediate level, these include burglar alarm-movement detector, extreme temperature, smoke alarms-cookers and flash fires; fuller packages feature fall and bed/chair occupancy detectors and signalling. Some 83% of applicants receive the core package, with 8% getting a fuller package. Ten people a day apply to join the new care model which now covers half of the over 65s in the county, indicating the ready acceptance of independent living by its target group.

Bed blocking is eliminated in WL and relations between primary care and the hospital, which is close and mutually beneficial, is improving waiting times, outpatient appointments and integrating cross service planning. The council and local NHS are continuing to expand covering and planning significant extensions.

4.2 *Chips with everything*

WL CHCP has 13 communities of practice to drive service improvement including those for GPs, dental services (private and public); prescribing (PC and hospital); optometry; allied health professionals; nursing (all disciplines) and social work. These feed innovative ideas into a joint working forum that represents all stakeholders, including voluntary sector and users. In late 2006, in a *Chips with everything* conference, a new service vision was revealed (Figure 2) envisioning links between elderly people and education, telecare and telemedicine services.

Figure 2 CHCP vision from Chips with everything conference

This vision covers all client groups, not only the elderly. At its heart is the integration of person-centred services. Currently, the favoured central user platform is a user-friendly interactive television (iTV), supported as Figure 2 illustrates by dedicated middleware linking services around individual needs.

4.3 *Outcomes: professionals and elderly people*

For service users, smart housing and integrated services are only aspect of their care environment which may include visits to a day centre, delivered meals, visits by a community nurse and attendance for specialist therapy (e.g. physiotherapy) or sport, leisure and education. Informal carers find the new arrangements enable them to plan their own lives (including working) and use visits to final users for quality time. Overwhelmingly, users applaud the new care arrangements; final users often speak of having greater confidence and the self-esteem of independent living – especially where their own home has been adapted and they remain in existing social networks. One elderly person commented “they’ve kept my world together, when it could have fallen apart”.

A recent series of interviews with social workers and GPs (Kinder, 2007) suggests that they too overwhelmingly envisage themselves within and support a transformed care model that releases their professional time and judgement for activities adding greater value to client’s care than the old model. In particular, social workers and GPs now work more closely, one social worker speaking of ‘rising expectations in quality of care from other professionals and clients and others about redefining roles and a broadening of breadth of competences’. As the GPs point out, creative tension in the CHCP seems

preferable to the GP dominance in the English trust model. In short, each group of professionals in WL view the new care model as enhancing their ability to deliver as professionals.

5 Analysis

Structured by Mulgan's (2006a) four characteristics of social innovations, this section analyses the case study and data above.

5.1 New combinations in social innovation processes

Figure 3 Ever-widening social innovation in WL elderly care

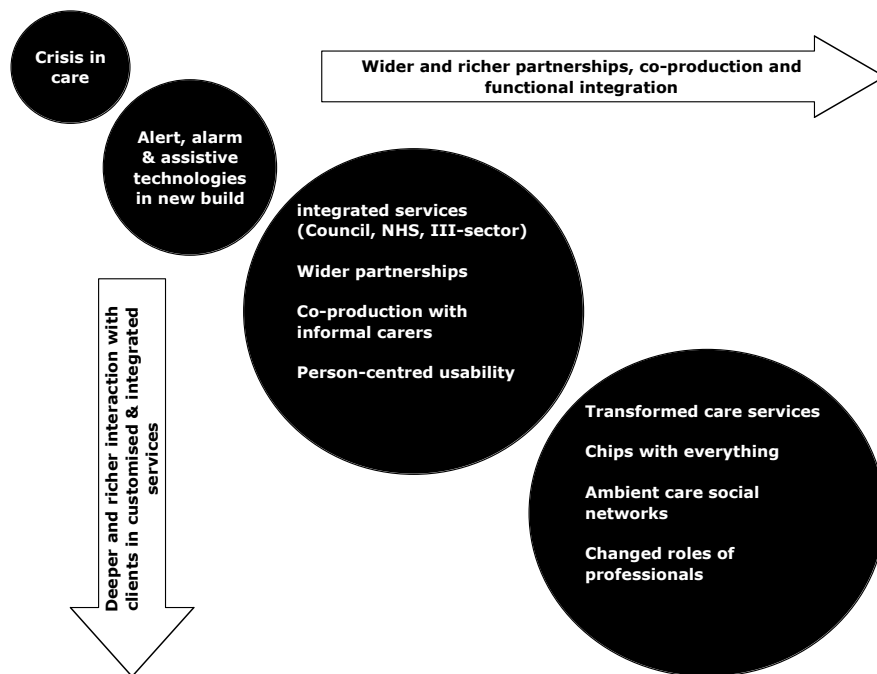


Figure 3 illustrates social innovation process as ever-widening in their impact and opportunities. Mulgan (2005a) argues that social innovations rapidly take an organisational form to support their diffusion and embedding new combinations that catalyse change. Transformation of care services in WL, illustrate that this new organisational form must adopt an open innovation perspective that actively learns to implement. A closed project management mentality might have successfully introduced alert, alarm and assistive technologies into newly built residential facilities in 1998 and then closed down the project celebrating success. This case thus supports the importance of Chesbrough's (2003) open innovation perspective, providing it aligns with a serious model of customer-centred usability, such as the usability quadrant.

Neither the crisis in care nor the availability of (mature and proven) technologies was unique to WL. Nor we suspect was the yearning of elderly people (including those with

early-to-mid stage dementia) to grasp a new care model. Although the usability quadrant featuring in early consultations is innovative, similar user-led approaches to innovation were and are readily available. One combination particularly powerful in the case is the preparedness of local professionals to work together to meet people's needs and in the process evolves new professional practices, identities and roles: cooperating to serve rather than competing for power and resources. The novel combination invisible in Figure 3 is a remixing of service model and technologies led by people actively listening to, interpreting and implementing the service needs of service users. Looked at through a reverse telescope, what prevents similar social innovation elsewhere may be the unpreparedness of organisational leaders (in this case local politicians and executive staff) to double-loop learning (i.e., new structures to exploit new knowledge) outside of organisational boundaries and in support of services and their users. In WL's case, smart housing, which began as project for independent living, has expanded into a new care paradigm, demonstrating the non-linear path that open innovation follows in creating new combinations.

5.2 *Crosscutting*

Crosscutting aims to achieve continuity, holism of service around the individual's needs. As in operational processes, initial crosscuts often expose sharply the constraints and barriers preventing further continuity. Kinder (2007) argues that service integration is best conceptualised not in terms of organisational development (e.g. a fragmented, coordinating, partnering linear progression) but rather in terms of integrated the actual service design and delivery – the processes and outcomes adding public value and value to individual service users. The WL CHCP chief executive too sees organisation building as an unwelcome deviation from service-centred innovation and accepts that this necessitates the higher transactions of complex accountabilities (e.g. joint planning, devolved budgets and multiple reporting). The CHCP has two co-located facilities and plans another three, echoing the findings of Bardach (1998) and Haynes et al. (2006) that proximity pays dividends in creating hybrid professionals and integrating services. Whilst integrating databases, IT systems and training is important to the CHCP, from the user and professionals perspectives, creating and using (digitised) joint assessments of clients (shared by GPs, hospital primary care, social workers and community nurses) is a significant CHCP's achievement. When Leutz (1999) argues that 'integration costs before it pays', he perhaps had in mind the costs and time taken to integrate organisations before integrating services. Social workers in WL are leading other professionals – initiating joint assessments, shared IT, driving service integration and in the process heightening their own self-esteem by offering a transformed care model to clients, playing a key role in the inter-agency communities of practice and joint panel.

Integrating assessments only places the client at the centre if intra-organisationally and inter-organisationally service providers then act to implement the agreed care package and maintain update and shared records. The WL case demonstrates that new structures and processes only deliver a transformed service model, where (previously separated) groups of professionals and staff work together in practice. Perhaps the most important crosscutting element of the social innovation around care in WL is the cross-pollination of innovative ideas in the 13 communities of practice and the joint working forum involving users and overseeing innovations.

5.3 *Compelling new social relationships*

One problem with leveraging bid budgets and project funding is the later mainstreaming of activities and relationships: often a combination of Hawthorn (make special) effect and the difficulties of reframing base budgets. Sustainable social innovations therefore create lasting new social relationships: roles, identities and expectations. Here, the processes of technology and social innovation diverge sharply. For social innovators, in this case with duty-of-care responsibility for (often) vulnerable people risk; new social relationships that necessarily contain new mutual dependencies and therefore new mutual vulnerabilities, take time to foster and often involve renegotiating trust, identities and language.

Citing Behn's (2001) idea of 360 degree accountability to the whole citizenry, the case illustrates how formal carer relations have altered in each direction. For example, social workers holding devolved budgets have change accountabilities to their managers; new shared accountabilities with partners (GPs, hospital doctors) and peers; and a more useful accountability to final users and informal carers (for appropriate independent living care packages aligning with wider care arrangements). The boundaries of purposive social work activity, (the same can be said of GPs), is thus extended to become part of the social innovation. This is only possible, given that trust and knowledge of users created by the close psychic distance lowers the risk of misplaced accountability.

Apart from inter-professional and final user social relations, the other important set of social relations in care of the elderly is with informal users (often family, friends and voluntary organisations). Whilst voluntary action is deeply rooted in WL, so too is the idea of local state social care. Co-production of care services, formalising alarm systems to informal carers and the contribution of voluntary organisations, is amongst the most compelling new social relationship in the new care model. Once outside of command-and-control structures into loose networks arrangements, persuasion becomes the motivating power. Could these transformed care models operate without the close psychic distance between informal carers and formal carers and their organisations? Perhaps not; the challenges of transforming care services in large (anonymous, greater psychic distance) cities may include the challenge of the localised service delivery models that are central to Mulgan's (2006b) revisioning of local services.

5.4 *Connectors*

Leaders and connectors matter in social innovation for vision, articulation of ideas and marshalling the people and resources to catalyse change. Effective social innovators allow others (as in the care of the elderly) to broaden the vision, whereas technological innovators may need to narrow theirs, in order to focus upon product, markets and sales. In the case of WL's care for the elderly, David Kelly (CHCP Chief Executive) and his colleague Grahame Blair have played critical roles. A key connector is the voluntary group carers of WL, which articulates the perspective of informal carers.

Perhaps the foremost connectors in this case are the GPs, social workers, occupational therapists and others forming and leading the communities of practice that are delivering service integration. Only with the support of powerful figures can communities of practice situate good practice into their own context, knowing they have ability to alter structures, roles, meanings and relationships necessary to connect between services and their users in new ways, in short renegotiating practice and identity. The new forms of

connectivity shown in this case, concretised in joint assessments and shared data on visits etc., is built on shared respect and understanding of the contribution brought by each set of professionals and the preparedness of each to compromise (old power structures and literacies) for a greater common good. Thus, the power to change increases the more that power becomes distributed.

6 Conclusions and the nature of social innovation

The case for smart housing illustrates how social innovation can be non-linear and open. It has argued that social innovations crucially depend upon evolving vision and learning-while-doing, distributing power and enabling professionals and co-producer, who enjoy close psychic distance to user, to articulate and implement change. Such change is likely to transgress the boundaries of original systems, creating new causal relations and social relationships, which in turn act as accelerators of social innovation [Mulgan, (2006b), p.49]. In such a setting, social innovation is shown to extend broader and deeper at the same time. The case here shows innovation in (non-market) local services employing advanced business tools to create better services, with lower costs and more satisfied users. Some research programmes privilege hard technology R&D above social innovation. The argument here challenges that perspective, showing that mature technologies can be recombined with new ways of working to create radical social innovations.

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